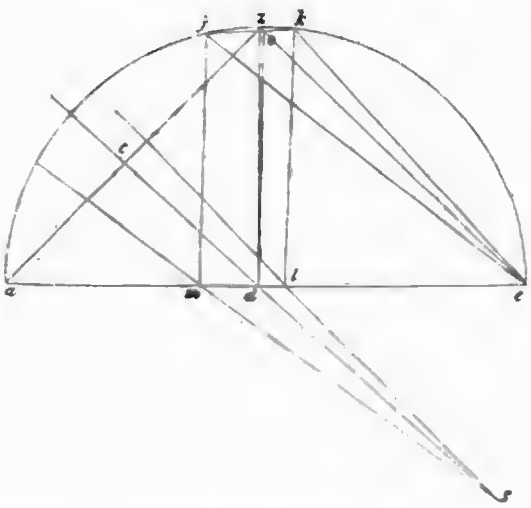
MULTIPLICATION OF THE CUBE.



MULTIPLICATION OF THE CUBE.

IN your number of the 16th June, a method and its "demonstration" are given by J. P. W., for the multiplication of a given cube on geometrical principles; and although you have guarded the reader, in observing that the method is but an approximation to the truth, yet I suppose you may not consider it altogether useless in noticing the following explanation of the imperfection in the "demonstration."

The accompanying diagram is lettered precisely as that of your correspondent J. P. W.

It will readily be seen that the mode of demonstration adopted by J. P. W. requires, to be perfect, that the line joining the points *s* and *z* should be parallel to *mj*, or at right angles to the base *ae*; but it can be shown that it is not. Draw the line *jk*, cutting the line *ze* in *o*, then, if *jk* be parallel to *ml*, will $\frac{jo}{ok} = \frac{mu}{ul}$ because by construction the angles *oej*, *keo*, are respectively equal to the angles *msu*, *lsu*, hence the line *os* is parallel to *jm*, and it therefore follows that *us* is *not* parallel to *jm*; again, if *jk* be not parallel to *ml*, then will neither *zs* nor *os* be parallel to *jm*, nor ever can be whilst that the points *j* and *k* do not coincide, which, indeed, will be the case when the angle *fbg* is equal to the angle *fgb* (see J. P. W.'s diagram), because in this case the line *gb* coincides with the bisecting line *gi*, and therefore the points *jzek* would also coincide. I will only add on this subject a general formula for the duplication of the cube, which I should be glad to see put into a pure geometrical shape by any of your numerous readers. If *a* represent the side of a cube then will $a + \frac{a}{\sqrt[3]{61}}$ represent the side of a cube double the size of the given one.

Another geometrical problem occurs to me, which, perhaps, is of more practical use than the former: it is the following:—

Having a drawing to make of a three-light window in the *pointed-arch style*, the tracery of which consists of *simple curves*, the leading lines being as shown in the accompanying diagram, the radius of the large arch *a b*, and the width of the lights being given, to find the radius *o b* of the inscribed circle *c b d e*.

Make *g r* on the vertical line equal to *h g*, the distance from centre to centre of the mullions; join *e a*, cutting the vertical line *sp* in *m*, then is *s m* equal to the radius *o b* as required.

Demonstration.—Put $o\,b = x$

$a\,b = a = f\,d$

$s\,g = e$

Then, because

$\overline{a + x}^2 \times \overline{a - x}^2 = \overline{a + e}^2 \times \overline{a - 3\,e}^2$

Or $\frac{2\,e}{x} = \frac{a}{a - e}$. Hence $g\,r : m\,n :: g\,a : h\,a$.

JOHN BULLISON.

PERMANENT DECORATION FOR ROOMS.

I WOULD suggest an improved style of decorating the walls of sitting rooms. At present we use paper; or plain painting, occasionally, for dining rooms. Paper is liable to this serious objection, viz., that stains from any cause cannot be removed; thus after a very short occupation of a house, it must be repapered at great expense, because the paper is soiled in one or two places.

What we require is something more durable, which, unless ill-used, will last as long as the house itself; can be constantly cleaned, easily touched up again if necessary, and be renovated in part without an entire change being necessary.

My idea is taken chiefly from the French panel papers, and partly, also, from the practice of painting the walls of rooms.

I would let into the walls of rooms porcelain slabs richly painted, which would give the same effect as the French panel papers; then the intervals should be filled up with plain painting, which should harmonise with the panels. Thus you have all the style of the French panel paper with a much more durable material. If more expensive in the beginning it would be far cheaper in the end.

If porcelain be too dear, glass or some kinds of wood, possibly encaustic tiles, would answer the same purpose. The great advantage of such a material would be, that it might be washed without injury, and would not imbibe grease as the papers do.

A HOUSE PROPRIETOR.

THE REVIVAL OF A NATIONAL ARCHITECTURE.

THE adoption in architecture of one manner instead of employing various styles, as under our present system, has been proposed to remedy the unsatisfactory state that all who think earnestly on the subject agree in considering the art to be in. It is a suggestion for which fair apology exists. Whenever architecture has possessed genuine vitality, as formerly in this country, a style prevailed,—one language was accepted and spoken by all. Like other speech, it refined with time,—gained strength and copiousness from use. Development was induced, progression manifested,—not apparently dependent upon the extraordinary chances of individual genius, only deriving, perhaps, some sudden occasional splendour from the latter source. With us, it is needless repeating, a host of styles prevail: we have a confusion of tongues,—a corrupt jargon of nearly every dialect ever lisped or spoken upon the earth. The history of the art does not encourage us to expect again a noble, living speech, unless one of these many modes of expression were extricated, and cultivated apart from the rest.

Nature has imparted to every soil its own peculiar character, and all the valuable and interesting architecture in the world resembles nature in this particular. The architecture of a country, setting aside its nationality, should be a *homogeneous architecture*. Such did Britain once contain—an architecture vast and beautiful, congruous with the scenery of the land. Our modern structures, in most instances, equally outrage both, and appear (what, indeed, they are) debased and garbled copies, in the presence of glorious originals. A new architecture would be folly, unless it were in harmony with the old, whose monuments are our actual wealth, and stand *quick* amid the lifeless fossil spoil by which they are encumbered.

To imagine, however, that our architects would, or could, unanimously agree immediately to appropriate and practice exclusively one general form, is absurd. Still it may not be vain to invite a section of them to combine for such a purpose, or to invite all approving minds to unite such a purpose, as far as possible, with the system at present encouraged. A society might be formed, perhaps of a local kind, in a particular district or county. It is not meant for designing churches alone, with a public edifice or mansion now and then, but to design any and every building whatsoever; for, well considered, every creation of this art has a great destination.

The choice of a style need not embarrass us. If styles are manifold, there are but two sorts of architecture—*organic* and *scenic*, the real and the feigned. But the style becomes of less importance when it is selected as a vehicle for thought and invention,—when assumed by a body of men, who, in the study of it, contemplate not to be pupils always, but poets presently. H.

METROPOLITAN COMMISSION OF SEWERS.

A GENERAL court was held on Thursday, the 19th. The Earl of Carlisle in the chair. The necessary deeds were ordered for the purpose of accepting a loan of 3,000*l.* from the Royal Exchange Assurance Company, for the Fulham and Hammersmith districts.

New rates were ordered to be prepared on the following districts, the funds being entirely exhausted:—Lower Wapping Level, at 8d. in the pound; Limehouse Level, at 1s.; Tower-hill Level, at 6d.; and Hermitage Level, at 6d.

The Chancery Proceedings against the Commissioners.—A letter was received from Messrs. Smith and Son, the solicitors to the commissioners, announcing the result of the proceedings before Vice-Chancellor Knight Bruce, the injunction being granted; but an opinion was expressed that the works of the commission would be little impeded thereby.

Mr. Leslie dissented altogether from the interpretation put upon the Vice-Chancellor's decision by the solicitors of the commission. The Vice-Chancellor had, in his decision, distinctly declared that the commissioners had acted wrong, had exceeded their authority, and that the case was not one that came within the 61st section. He believed the matter had been correctly stated in the daily journals; and he (Mr. L.) had the opinion of the registrar of the court that the decided view of the Vice-Chancellor was that the question did not come within the 61st section.

The Earl of Carlisle remarked that the position of the commissioners was most perplexing. If, in cases of emergency, they ordered works, they did so at the risk of getting into the Court of Chancery; if they neglected to do so, Mr. Payne, the coroner, had recently, in a charge to a jury, told them that the commissioners could be indicted for manslaughter. In this unenviable position, if the question could be settled on terms of arbitration, he thought they should adopt that course as soon as possible.

Mr. Bullar said the only illegality was in removing the soil. The officers, for the purpose of filling in the ditches, had dug the soil from the banks instead of taking dry rubbish to the spot.

Mr. Leslie said that at first the court justified their acts under the 61st section, but being driven from that they tried the 37th and 38th sections; but on these they found the Vice-Chancellor just as much opposed to them as he was on the 61st, although they contended that it was artificial ground formed by the casting-up of the sewer, and that they might take possession of it. This was a matter of great importance, having got the decision upon it, and having got into the "mess" entirely through not bringing the question before the court in the first instance. Before the court knew anything about it, the officers were sent to the land to commit what had brought them into the Court of Chancery.